5

AQIM Handbook

Maritime Cargo

Introduction

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Background

The cargo population, or sampling universe, for AQI monitoring is now defined as specific categories. Random samples can be taken from these populations with more intensive (hypergeometric) inspections completed and necessary data recorded about these commodities

In order to properly monitor cargo, you need to have a good understanding of two key statistical principles:

1. It is important that the sample selected be representative of the category. Random selection helps ensure this.
2. Once the sample is selected, it is necessary to inspect the sample thoroughly and according to hypergeometric sampling procedures if applicable.

If you want your port to produce quality risk information, then each person participating must have a clear understanding of the sampling universe, the unit of sampling, and consistency issues.

The Sampling Universe

You estimate the number of actions due to pests or smuggling in a cargo entry pathway by taking random samples from the cargo in the pathway. It is key to good statistics to carefully define this universe from which you want to draw your random sample. The following questions need answers in order select the sample correctly and to make statistical inferences for the entire universe.

- How are commodities transported?
- How many shipments of these commodities are arriving at a work location?
- What is the seasonality of the commodity?

For AQIM, the universe is defined by the mode of transport of the cargo such as airplane, ship, or truck. Initially, PPQ has decided to limit the universe. The following commodities or commodity types are **excluded** from the sampling universe:

- Commodities which are pre-cleared at foreign sites
- Frozen commodities;
- Commodities which undergo some type of mandatory treatment, other than cold treatment (for example, fumigation, irradiation, hot water treatment) at work locations
- Oil, salt, iron ore, coal, etc., which have no pest risk.

Cargo Strata and Stratifying the Sample

The sampling and inspection processes for AQIM were designed to be compatible with PPQ cargo inspection groupings. The cargo universe is divided into several homogeneous and distinctly separate groups. Each group contains commodities that will be sampled in order to

estimate the action and pest approach rates in each group. A port may be sampling one or more of the commodities in a group or across groups. The following cargo categories are to be monitored in FY 2004:

Commercial Perishable Agricultural Cargo (This category is defined as any commercial shipment of fresh fruit or vegetables)	Sampling to take place at the ports of Brooklyn NY, Elizabeth NJ, Ft. Lauderdale FL, Long Beach CA, Miami FL, Wilmington DE, Philadelphia PA, Huston, TX
SWPM (Solid Wood Packing Material)	Sampling to take place at All Ports that receive SWPM in cargo shipments
Italian Tile Container Cargo	Sampling to specifically take place at the ports of Baltimore MD, Charleston SC, Chicago IL (maritime rail), Elizabeth NJ, Houston TX, Norfolk VA, Miami FL, and Savannah GA.

By selecting a set number from these categories, PPQ is able to get precise estimates of the number of containers with pests approaching or other needed actions. This risk information helps the work location understand how effectively it manages the pest risk for each commodity, as well as for the entire cargo universe at the port.

It's very important that each commodity in a category selected be representative of all other units of that commodity. All shipments of a category should have a chance of being selected as a sample. One way to ensure that the sample is representative is to choose a shipment of the commodity at random (either random time, or random number, etc.). This random selection process eliminates the bias of the officer who is selecting the sample. The officer's experience (bias) might lead to choosing a shipment that is more likely to be harboring a pest. This bias would make the sample not representative of the entire commodity universe. The survey results would be skewed and this kind of bias would hamper the port's ability to make the best decisions based on risk analysis.

Setting Up a Process

Setting up a process of selecting representative samples for each of the commodities will be one of the biggest challenges in AQIM. Because each port has its own unique set of circumstances in cargo operations, the port must individualize its random sampling process. It will be necessary to document the process and possibly ask for feedback from other maritime cargo ports, regional AQIM coordinators or Port Operations staff who have experience in selecting random samples in the cargo environment. The port may even decide that the Port Risk Management Team determine and review the random sampling process on a regular basis.

The Unit Of Sampling

For maritime cargo, the sample unit is the container or container equivalent of the commodity. A container equivalent is defined as the number of pallets of a commodity (20) that would fill a 40 foot container. It is crucial that the sample unit is inspected closely enough to detect any actionable pests and any smuggling of prohibited agriculture commodities. Summary inspection procedures for maritime cargo begin on **page 5-6**. The procedures must be followed exactly in order for the monitoring estimates to be valid and useful.

Consistency of Data Collection

It is crucial that the monitoring results from the inspection of a random sample unit are recorded accurately and consistently. Because each sample represents many other units, all officers must be as consistent as possible in following the inspection procedures.

Regulated commodities pose a special challenge. If the sample selected is a regulated commodity, it is important to understand the following:

Cargo monitoring estimates the number of containers approaching the work location with commodity pest infestation levels requiring action by PPQ. AQIM uses risk-based inspection procedures for detecting a 10 percent or more pest infestation rate. This initial threshold is used to estimate the number of containers approaching a work location with a pest threat.

This 10 percent infestation level may change as the data for AQIM is collected and analyzed

To be 95 percent sure that the officer inspecting the sampled container will find the pest, when the shipment is infested at a 10 percent infestation or more level, the officer must select, at random, a specific number of boxes in the shipment. Determine this number of boxes by using the hypergeometric table illustrated in **Table 5-1.** Each of these boxes must be inspected at level of intensity to ensure that:

- No hitchhiker pests are present in the box,
- No internal feeding insects are present in randomly selected fruit in the box
- No mismanifested or smuggled items are present

TABLE 5-1: Hypergeometric Table For Random Sampling In Commodity Inspection

Total Number of Boxes Inside Sample Container	Number of Boxes to Select at Random From the Container and to Inspect to Detect Pests
1-10	10
11-12	11
13	12
14-15	13
16-17	14
18-19	15
20-22	16
23-25	17
26-28	18
29-32	19
33-38	20
39-44	21
45-53	22
54-65	23
66-82	24
83-108	25
109-157	26
158-271	27
272-885	28
886-200,000	29

Officers should follow normal inspection procedures of the commodities to determine pests. For example, officers should cut fruit to detect internal feeders if external evidence is present

Maritime Cargo Procedures Summary

MARITIME CARGO AQIM PROCEDURES	
Commodity	Random Sample of one or more of the following categories (non-frozen cargo & excluding pre-cleared cargo)(Cargo categories are to be monitored in FY 2004) : **Commercial Perishable Agricultural Cargo** (This category is defined as any commercial shipment of fresh fruit or vegetables.) (Sampling to take place at the ports of Brooklyn NY, Elizabeth NJ, Ft. Lauderdale FL, Long Beach CA, Miami FL, Wilmington DE, Philadelphia PA, and Houston TX) **SWPM (Soild Wood Packing Material)** (Sampling to take place at All Ports that receive SWPM in cargo shipments) **Italian Tile Container Cargo** (Sampling to specifically take place at the ports of Baltimore MD, Charleston SC, Chicago IL (maritime rail), Elizabeth NJ, Houston TX, Norfolk VA, Miami FL, and Savannah GA) dasheens: all countries
Cargo Population Definition	All containers (or container equivalents) carrying the above commodities destined to US. This does not include precleared and frozen commodities. Also it does not include commodities with mandatory treatments at port of entry. Note: Commodities with mandatory cold treatments are included.
Sample Size	For **Commercial Perishable Agricultural Cargo,** select two (2) containers (or container equivalent) per week per port. (Excludes cut flowers. pre-cleared, and mandatory treatment cargo) For **SWPM (Solid Wood Packing Material,** select two (2) containers per week per port as All Ports that receive SWPM in cargo shipments. For **Italian Tile Container Cargo,** select two (2) containers per week per port required (and as tile is seasonality available) **Contact Regional AQIM Risk Mgmt Program Mgr. for assistance.****
Sample Selection	Port discretion, random time, skip intervals, etc. May need to first determine the total number of shipments of a commodity received at a port in one year. If commodity is seasonal, then sampling should be planned to occur during the full import season of commodity, if reasonable for the number of samples needed.

MARITIME CARGO AQIM PROCEDURES	
Inspection Methology	Each selected shipment requires a physical inspection at port or consignee premise. Boxes for inspection must be taken from random locations throughout the container to detect a 10 percent level of infestation (at 95% confidence). The number of boxes shall be set using **Table 5-1**. Entire contents of boxes selected and available floor space of the container shall be inspected for agricultural pests or mismanifested or smuggled items. For **Commercial Pershable Agricultural Cargo**: 1. Inspect cargo usiing appropriate AQIM hypergeometric inspection prodecures for each sample. 2. Record all needed data on appropiate FY 2004 AQIM data worksheet For **SWPM (Soild Wood Packing Material)** and **Italian Tile Container Cargo**: 1. Inspection of cargo and SWPM is to assure observation of as much SWPM as cargo will allow. Partial oor full de-vanning may be necessary based on situation and judgement of inspector. 2. Record all needed data on appropriate FY 2004 AQIM data worksheet
Other Issues	Inspections shall be conducted during the normal business hours at the port. Costs for OT clearance will be paid by the shipper/broker/ consignee. Need to advise shippers, importers, and brokers that random sampling and inspection will be part of day-to-day operations. They should understand that there is a probability that their shipment will be intensely inspected.
Regional AQIM Risk Management Managers:	Western Region - Judy Pasek: 970-494-2523 Eastern Region - Calvin Shuler: 919-716-5591

Pathway Monitoring Maintenance and Quality Assurance

Port managers and local AQIM coordinators are responsible for ensuring that monitoring activities are being performed and performed properly. To help with reviewing the status of monitoring activities, refer to **Appendix L**, Pathway Monitoring Maintenance, in the AQIM Handbook. This appendix contains a checklist of questions port managers and local AQIM coordinators should periodically answer to ensure proper monitoring of each designated pathway at their work locations. **See Figure L-1**. The questions review the following topics:

- Random sampling
- Proportional sampling
- Adequate sampling

- Accurate and complete data
- Working risk committees
- Local support

Maritime Cargo Worksheet

There is one worksheet for recording information gathered from your inspection of Maritime cargo for the purpose of AQIM. Be sure to record the commodity being inspected properly.

http://www.aphis.usda.gov/ppq/manuals/pdf_files/AQIM_in_PDF/Maritime_Cargo.pdf

FY02: MARITIME CARGO: COMMODITY MONITORING DATA

Revised 3/1/2002 (Instructions on Reverse)

Port _____ Pier/Terminal: _____ Bill of Lading/Container No: _____ Inspected by: _____

A) Commodity: _____ **B) Date:** _____ **C) Consignee:** _____

D) Carrier (Line/Vessel Name): _____ **E) Origin:** _____ **F) Destination:** _____

G) Cargo Description: Group* _____ **H) Total Cargo Amt:** (Count/Weight): _____ / _____ **I) Amt of Cargo Inspected** (Count): _____ (Regulated Cargo Only)

J) Inspection Method:** ☐HG ☐OEC ☐OPC ☐TGT

K) Any Solid Wood Packing (SWP): (If YES complete 1 - 4) ==> ☐NO ☐YES

1) Type of SWP: (check one) ☐Dunnage ☐Pallet ☐Crating ☐Other
2) Was Bark found on SWP: ☐NO ☐YES
3) Indicate % of SWP inspected _____%
4) Certificate for fumigation or other treatment of SWP presented? ☐NO ☐YES

L) Based on inspection findings, is additional action necessary to reduce agricultural risk? ☐NO ☐YES (IF YES, complete ALL parts of 1,2, 3 & 4 below)

****

1) Check the Intended Use of Cargo:::::> ☐Wholesale/Retail ☐Propagative ☐Mfgr/Processing ☐Personal Consumption ☐Could Not Determine

2) Actionable Pest found? check one : ☐**NO** ☐**YES**

	CARGO ITEM	PEST ID	PEST INTERCEPTION #	WHERE WAS PEST FOUND***
If YES, list info on pest(s):::>				☐EXT ☐TGT ☐RR ☐FR ☐SWP
(Record pest interceptions from SWP here also)				☐EXT ☐TGT ☐RR ☐FR ☐SWP
				☐EXT ☐TGT ☐RR ☐FR ☐SWP

3) Contaminant Found?: ☐**No** ☐**Yes** (If YES, list below the info about the contaminant including the item it's associated with, i.e. soil on yams, etc)

4) Agriculture Items Mismanifested or Smuggled?: ☐**No** ☐**Yes** (If YES, list below the info about the mismanifested or smuggled cargo item(s))

CONTAMINANT / ITEM	AMOUNT (Count/Weight)	PROHIBITED? (By Reg or Q#)	WHERE WAS IT FOUND***
	/	☐No | ☐Yes	☐EXT ☐TGT ☐RR ☐FR
	/	☐No | ☐Yes	☐EXT ☐TGT ☐RR ☐FR
	/	☐No | ☐Yes	☐EXT ☐TGT ☐RR ☐FR

** **Inspection Method:** **HG -** Hypergeometric Sample **OEC** - Observed Entire Contents **OPC** - Observed Partial Contents **TGT** - Observed Tailgate Only

*** **Where Found Explanations:** **A/C** - Interior or Exterior of Air Container **SWP** - Solid Wood Packing **CG** - Associated with cargo

* **Cargo Descrip. Groups:**

ANPED: animal prod. edible (meat, etc) **FCF:** fresh cut flowers, etc **PLNT:** all prop. plants/parts **UNKN:** unknown or no descrip.
ANPNE: animal prod. NOT edible **FFV:** fresh fruit /veg **SEED:** all seeds/grains
BLBIO: blood, serum, biologicals **LMBR:** lumber, logs **SOIL:** soil, dirt, etc.

Revised 03/01/2002

DATA FORM INSTRUCTIONS (Maritime Cargo Commodity Monitoring):

IMPORTANT: Revised 03/01/2002

1. **All data fields (A-L) must be filled in for a completed monitoring record even if no agriculture risk is found. If answer to "Does cargo require action beyond inspection to reduce agricultural risk" is Yes, then answer all parts of questions 1 through 4. Cargo needs to undergo thorough inspection for pests. Regulated cargo must be sampled using hypergeometric sampling plan. All actionable pest types and quantities found must be recorded. See Pest ID explanation below.**

INSPECTED BY: Print name or badge number of the person responsible for the inspection of the cargo. This data is for local office use, it is not recorded in the monitoring database.

A) COMMODITY: Record the appropriate cargo commodity that is being inspected and targeted.

B) DATE: Record the date of the inspection.

C) CONSIGNEE: Record the consignee of this shipment.

D) CARRIER: Record the appropriate information (major shipping line / vessel name) that transported the cargo to the port. Spell names completely.

E) CARGO ORIGIN: Record the country of origin of the cargo. Spell out the country name. If unable to determine country, then indicate area of origin such as: Asia, Middle East.

F) CARGO DESTINATION: Record the State where the cargo is destined using the appropriate 2 letter abbreviation.

G) CARGO DESCRIPTION GROUP: Record the appropriate general group that the cargo is in. If unknown or no description, use UNKN

H) TOTAL CARGO AMOUNT: Record the TOTAL cargo count of boxes, cartons, bags or other singular units, also record the total amount of cargo by recording the weight in kilograms.

I) AMOUNT OF CARGO INSPECTED: (FOR REGULATED CARGO ONLY) Indicate the amount of cargo sampled and inspected by recording the number of boxes, cartons, bags or other singular units that was actually inspected. (Do not record total cargo amount, unless that much was inspected.)

J) INSPECTION METHOD: Check the appropriate response to indicate the which inspection method was used. See bottom of form for explanation of codes.

K) ANY SOLID WOOD PACKING (SWP): Check the appropriate response. If yes answer I through 4 about the SWP: **1) TYPE OF SWP:** Indicate the type of solid wood packing inspected **2) PERCENTAGE OF SWP INSPECTED:** Estimate the percentage of solid wood packing inspected. **3) BARK FOUND ON SWP:** Check the Appropriate response. **4) CERTIFICATE OF FUMIGATION OR OTHER TREATMENT:** Indicate if a certificate for fumigation or other treatment of SWP was presented with entry documents.

L) DOES CARGO OR CARGO CARRIER REQUIRE ACTION BEYOND INSPECTION...: Check whether cargo or cargo container or cargo carrier requires additional action beyond usual inspection procedures. This includes: pests found, cargo items mismanifested or smuggled, contamination present, cleaning, etc.. If yes, then complete all questions in 1 - 4. below starred line.

****

SPECIAL NOTE FOR RECORDING DATA ON ANIMAL MEAL: If an action on animal meal do the following:- Record YES for #3 "Contaminant Found" on data sheet (EVEN if contaminant not found) then list in the "Contaminant/Item" data fields each individual reason for the action (i.e..: flesh found in shipment, OR shipment moist, not dry OR from BSE country, etc..)

1) INTENDED USE OF CARGO: Record the intended use of the cargo. Check the appropriate response. If unable to determine, then mark Could Not Determine.

2) ACTION PEST FOUND: Record if Actionable pest was found or not. If yes, for each actionable pest found record the **cargo item** (include "container" or "truck" as options if appropriate) that the pest was found on; the full **pest identification**; the PPQ pest ID # assigned; and **where infested cargo or pest was found**. See bottom front of form for "where" code explanations.

3) CONTAMINANT FOUND: Record if contaminant was found or not. If yes, record each **contaminant** and the item it's associated with (i.e.: manure on truck, soil on yams etc.); and the amount of the contaminant in kilograms if practical (accurately estimate if necessary); whether **prohibited** or not; and where the pest was found. See bottom front of form for code explanations.

4) AGRICULTURE ITEM MISMANIFESTED OR SMUGGLED: Record if mismanifested or smuggled agriculture item(s) were found or not. If yes, record: each **item** ; the amount - both the weight in kilograms (accurately estimate if necessary) and the count; whether **prohibited** or not; and **where the item was found**. See bottom front of form.

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AQIM Handbook

Maritime Cargo

Data Collection and Maintenance

Introduction

Traditionally, PPQ based our work on how much cargo we inspected and on the number of pest interceptions found on cargo. We inspected cargo, found pests, and tallied them to justify good job performance. AQIM emphasizes work efforts based on the potential threat posed by foreign pests and quarantine material.

By sampling a set number of samples from each cargo stratum, PPQ is able to get precise estimates of the number of cargo containers with pests approaching. It is then easier to make comparisons which help the port understand how effectively it manages the pest risk in each cargo grouping, and therefore, for the cargo universe.

Every PPQ port needs to be involved in AQIM. Each port has a group of managers, supervisors, and officers who manage results monitoring and the subsequent risk management functions at the port. All PPQ personnel are involved and supportive of the process.

The expected results are that PPQ will have results monitoring systems in place that will meet the needs of management and the requirements of the GPRA.

Epi Info User Guide for Data Entry– Maritime Cargo

When first using Epi Info, thoroughly read the user guide to become familiar with entering data into each of the data fields.

General Instructions

After **each data entry session** make a back up of the data records file, CGMMRT.REC, to a computer disk. See **Appendix G** for procedures for backing up monitoring data.

1. Press [**CAPS LOCK]** (to ensure typing capital letters).
2. Be sure to start at C:\ prompt. Epi Info is a DOS program.
3. Change to the Epi Info directory. Type: **CD EPI6** then Press [**ENTER**].
4. Start Epi Info program. Type: **EPI6** then Press [**ENTER**].

5. Wait several seconds, the Main Menu will appear with the word Program highlighted.
6. Press [**P**] (to list Program menu).
7. Press [**N**] (to choose **ENTER** from Program menu).
8. Cursor should be in space below the phrase "Data file (.REC)".
9. Type in the space the cursor is in: **02CGMMRT**.
10. Press [**ENTER**] **3 times** (to load files for data entry).
11. Data entry screen for Cargo Strata should appear.

Help Statements

Read the following help statements before entering data:

- Each data entry screen represents only one monitoring inspection. After correct data entry is made and saved, this becomes a record for that one inspection.
- Some data fields will automatically advance the cursor after entering data, some require pressing the enter key to advance the cursor after entering data.
- Some data fields will be skipped depending on the strata.
- Data entry messages and valid data values for each data field appear at the bottom of the screen or by pressing [**F9].**
- If an error is made and the cursor has left the data field, use the Up (↑) and Down (↓) arrow keys to move from field to field in order to change or correct data fields already entered.
- **DO NOT PRESS F6 to delete a record**. Despite the screen label, this does not delete the record, it only places an asterisk on the record number. Epi Info will ignore records with an asterisk when doing analysis commands. To eliminate the unwanted record from the data file, type over the unwanted record with a new record.

Enter Data

Read the following as you enter data to become familiar with each of the fields.

Cargo Type—With the first record, you will need to complete this data field. For each record thereafter, this field will repeat. This field is automatically filled in, if not contact the local AQIM Coordinator. This field is used for analysis purposes.

Pier/terminal—Enter the pier/terminal. Be consistent with spelling.

MRTRECNUM—Do not enter data in this field. This field is automatically filled in. THIS FIELD WILL SERVE AS THE "OFFICIAL" PERMANENT RECORD NUMBER. DO NOT USE THE NUMBER LOCATED IN THE LOWER RIGHT HAND CORNER OF THE SCREEN TO IDENTIFY A RECORD.

A) Commodity—Press **[F9]** choose a commodity. If you cannot find the desired commodity, select the "other" data field. Then, write the desired commodity in the "other" field.

B) Date—Enter date of inspection from the data form in MM/DD/YYYY format.

C) Consignee—Enter the consignee of this shipment.

D) Carrier—Enter shipping line and vessel name.

E) Cargo Origin—Press [**F9**] to open window of valid country names. Type the first and second letters of the country name in order to scroll down the list faster. Use Up (↑) and Down (↓) arrow keys to highlight the country name. Press [**ENTER**] to select it. Note, if you are unable to determine origin, then select a region such as Asia, Middle East.

OrgnCode—Do not enter data in this field. This code is entered automatically. Press [**ENTER**] to advance the cursor and automatically fill in the data fields Reg Code and World Region.

Reg Code—Do not enter data in this field. This code is entered automatically.

World Region—Do not enter data in this field. This code is entered automatically.

F) Destination—Press [**F9**] to open window of valid destination names. Type the first letter of destination name in order to scroll down the list faster. Use Up (↑) and Down (↓) arrow keys to highlight correct choice. Press [**ENTER**] to select the destination.

G) Description Group—(for regulated cargo only) Enter general group recorded on data form (I).

Cargo Count (Num)—Enter the amount of cargo units (boxes, cartons, bags, etc.).

H) Cargo Weight (KG)—Enter the amount of cargo by recording the weight in kilograms.

I) Amt. Insp (Num)—(for regulated cargo only) Enter the number of singular units sampled and inspected (boxes, bags, cartons, etc.).

J) Inspection Method—Enter the inspection method circled on the data form. Valid values for the methods are listed at the bottom of the screen.

K) Solid Wood Packing (SWP)—Enter either N(no) or Y(yes).

- If Y: Cursor will proceed to next data field (SWP Type)
- If N: Cursor will jump to "Require Action Beyond Inspection to Reduce Risk?"

1. SWP Type—Press [**F9**] to open window of valid SWP types. Use Up (↑) and Down (↓) arrow keys to highlight the correct type. Press [**ENTER**] to select it.

2. Amount of SWP Inspected— %Enter percentage of SWP inspected.

3. Bark on SWP—Enter either N(no) or Y(yes) response from the data form.

4. SWP Fumigation Certif. or Other Treatment presented—Enter either N(no) or Y(yes) response from the data form.

Required Action Beyond Inspection to Reduce Risk?—Enter either Y(yes) or N(no):

- If Y: cursor will proceed to next data field.
- If N: then cursor will jump to bottom of screen asking the question: "Write data to disk (Y/N/<Esc>)?" If data entry is correct and complete, answer Y to this question and the data screen will renew for the next record entry.

1. Intended Use of Cargo—Press [**F9**] to open window of valid uses. Use Up (↑) and Down (↓) arrow keys to highlight correct use. Press [**ENTER**] to select it.

2. Action Pest—Enter either **Y**(yes) or **N**(no):

- If Y: cursor will proceed to the next data field.
- If N: Cursor will jump to "3. Contaminant Found?".

Cargo Item—Enter the cargo item that the pest was found on, include cargo conveyance as an option, if appropriate. NOTE: When recording:

- Use the singular form (except for leaves)

- Use precise descriptors: fresh, dried, frozen, etc.
- Describe using common English names, if possible
- DO NOT use the general descriptors **cucurbit, bean, or rubus sp.** Break down these descriptions to more detailed items, if possible.

Pest ID—System will automatically enter NONE (for no pest found).Enter the identified pest name (genus/species).

Pest Intercep. Num—System will automatically enter NONE (for no pest found). Enter the pest interception number assigned to the pest. This number maybe assigned later or by another office. **If pest interception number assignment is delayed, then enter the letters "TBA" (To Be Assigned).** When TBA is used, be sure to note the permanent record number in the upper right corner of screen so updating can be done.

Where found:WFA—Enter where the pest was found in relationship to the container/conveyance that the cargo arrived in. See the valid values to enter at the bottom of the screen.

WFA—A second field for where the pest was found if the pest is found in more than one of the locations listed.

Cont (Continue)

- Type: **Y** if additional pests and cargo items ARE to be entered. Press [**ENTER**] to leave field and continue on. (Cursor jumps down to next cargo item field. You can enter up to three cargo items in a record.)
- Type: **N** if no other items are to be entered in this record. Cursor will jump to "3. Contaminant Found?".

3. Contaminant Found?—Enter **N**(no) or **Y**(yes) to indicate if a contaminant was present with the cargo. IF **YES**, be sure to enter the contaminant information after answering next data field.

4. Agr. Item Mismanifested/Smuggled?—Enter **N**(no) or **Y**(yes) to indicate if any mismanifested or smuggled items were found with the cargo.

- If **Y**: then cursor will proceed to next data field.

- If **N** and
  - if **Yes** to previous Contaminant question, cursor will move to next data field.
  - if **No** to previous Contaminant question, cursor will jump to the bottom of the screen asking the question: "Write data to disk (**Y**/**N**/<**Esc**>)?". If data entry is correct and complete, answer **Y** to this question and the data screen will renew for the next record entry.

Contaminant/Item—

- If Contaminant: Enter the contaminant name and the cargo item (cargo conveyance) it's associated with. (Soil on yams, manure on truck, etc.)
- If Mismanifested/Smuggled: Enter the items found.

Cnt (Cargo Count)—Enter the amount in singular units (boxes, cartons, bags, etc.), if appropriate.

Wght, KG—Enter the amount of listed contaminant or mismanifested/smuggled item in kilograms. Enter best accurate estimate, if necessary.

Prohibited—Enter if contaminant or mismanifested/smuggled item is prohibited because of a regulation or quarantine.

Where found:WFA—Enter where the contaminant or mismanifested/smuggled item was found in relationship to the container/conveyance that the cargo arrived in. See the valid values to enter at the bottom of the screen.

WFA—A second field for where contaminant or mismanifested/smuggled item was found if found in more than one of the locations listed.

MO—Do not enter data in this field. This field is filled automatically with the numeric value of the month. This field is used for analysis purposes.

Cont (Continue)

- Type: **Y** if additional pests and cargo items ARE to be entered. Press [**ENTER**] to leave field and continue on. (Cursor jumps down to the contaminant/item field).
- Type: **N** if no other items are to be entered in this record. Cursor will jump to "Write data to disk (**Y**/**N**/<**Esc**>)?"

- Type: **Y** if data entry is complete for this record. Record will be saved to the record's file.
- Type: **N** if you wish to make changes or corrections to the record field. After making changes or corrections remember to return the cursor to the last completed data field. Press [**ENTER**] to return to the prompt "Write data to disk (**Y**/**N**/<**ESC**>)?"

When finished with data entry

1. Press [**F10**] to return to the main start up screen.
2. Press [**F10**] again to leave Epi Info and return to the regular computer screen.

After each data entry session, make a back up of the data records file, **02CGMMRT.REC**, to a computer disk. See **Appendix G** for back up instructions.

5 Maritime Cargo

AQIM Handbook

Data Analysis

Survey Results and How To Use Them

AQIM Activities have been put into place to develop baseline data to help answer two basic questions:

1. What is the threat of agricultural pests approaching ports? What is the level of infestation of the pests in the cargo?
2. How effective is the AQI program at managing this threat?

Preliminary results for maritime cargo surveys provide a general answer for question 1. That is, there are varying rates at which prohibited agricultural materials or cargo units infested with an agricultural pest approach the ports. Surveys show that at some ports about 1.5 percent of the container units carried actionable pests in the past year, while other work locations show rates as high as 20 percent.

These percentages are an approximation of agricultural pest threat. Further analysis of the monitoring data is needed to determine the risk associated with maritime cargo approaching the work station. The origin and destination of the cargo are important to determine risk levels. Also, whether or not the cargo carries an actual agricultural pest or smuggled item is crucial in analyzing risk.

Analyses of the monitoring data need to occur at several levels of PPQ. At the ports, PPQ personnel need to study what the data means and answer the first question for their specific location. Analysis tools are available to help with these analyses, which are explained in the next subsection. At the same time, PPQ holds risk analysis workshops around the country to introduce risk analysis concepts. At some ports, teams of PPQ officers and managers form Risk Management Teams to look at monitoring data and other data, which are normally collected at the location.

At other locations, analyses of monitoring data occur to establish rates at which quarantined items and agricultural pests are approaching the borders of States, areas of the country, and the United States.

Once baseline rates are well established, PPQ can use the monitoring data as a baseline to answer the second basic question: How effective is the AQI program at managing the risk of introduction of agricultural pests and diseases? Again, each work location must conduct this type of analysis. AQIM provides a framework which work locations can use to carry out the analysis.

Analysis Tools

There are two tools available for analyzing AQI monitoring data. One is the ANALYSIS program in Epi Info. The other tool is the Short-term Reporting Tool (SRT) accessed using Netscape.

Using the SRT you can look at data entered for your work location, as well as for other work locations within a State, a Region, or across the nation. Also, using the SRT you can look at WADS data to use with AQI monitoring data. Refer to **Appendix J**—Internet for guidelines on how to use the SRT.

Using the ANALYSIS program in Epi Info you can look at data entered specifically for your work location. While in Epi Info ANALYSIS, you can select a data analysis program file (*.PGM) that automatically runs a series of Epi Info commands. The program will produce various listings, tables, analysis commands, and explanatory text from data files for a designated pathway. Follow the guidelines on how to load and run data analysis program files beginning on **page 5-22**.

Epi Info ANALYSIS saves the analysis output to a file for viewing and/or printing. The file contains basic information that answer some of the questions to guide data analysis that follow. For questions not answered by running an automatic program, you will need to key in and run various analysis commands. Follow the Epi Info User Guide for Data Analysis-Maritime Cargo beginning on **page 5-25** to help you with the analysis commands.

Questions to Guide Data Analysis

1. How many containers were selected for sampling during the survey period?

   How many actions were required on containers sampled?

   How many actions by strata category sampled were there?

   What is the action approach rate of containers that require action (number of containers requiring action divided by total containers in the sample)? What are the action approach rates by strata category?

2. How many pest interceptions (actionable pests) were made from survey samples?

Pest approach rate: What is the rate of pest interceptions in relation to the total sampled number of containers (number of containers with actionable pests divided by number of containers total in the sample)?

3. Compare the rate of actions required for each month of the survey.

   DISCUSSION:

   Are these easily identified trends when the rate of QMIs transiting the port are higher?

   Are there seasonal trends?

   Do higher rates correlate with national or religious holidays, certain types of containers, cargo, or importers?

4. Generate a listing and frequency of shipments requiring action. Which commodities present the greater risk?

   Which commodities most likely require action? Where were the agricultural pests found? Which commodities involved solid wood packing (SWP) actions? What is the rate of containers with smuggled or mismanifested items?

   DISCUSSION:

   How effective is the current tailgate inspection process in detecting pests and/or smuggled cargo?

5. What types of shipments (refrigerated, mixed vegetables, dry containers, empties, cut flowers, express carriers, etc.) require higher rates of action?

   DISCUSSION:

   What selectivity factors are currently used to identify shipments likely to require action?

   What additional selectivity factors would be used to identify shipments likely to require action?

   Do the survey results indicate additional factors that help identify shipments most likely to require action?

6. Using monitoring data, apply the survey results to the cargo universe at the port to estimate the number of actions required and interceptions likely to transit the port during the same time the survey period took place.

How many containers arrived at the port during the survey period? Using the action approach rate for containers requiring action, calculate an estimate of the number of containers transiting the port that are likely to require action. What are the estimates per strata category?

Using WADS data, how does the estimated number of actions required compare with the reported number of actions taken?

How many additional actions may have been required during the survey period?

How does the estimated number of actionable pest interceptions compare with the reported number of actionable pests on WADS?

DISCUSSION:

What percentage of resources are dedicated to staffing AQI activities for maritime cargo at this port?

What is the relative risk of maritime cargo compared with other pathways in the port?

Should resources be reallocated among all the pathways in the port to better address the relative risk of the pathways?

How to Load and Run Data Analysis Program Files

Data analysis program files are meant to provide only listings, tables, and explanatory text about the monitoring data gathered at work locations. The program files are not intended to be used an final analysis tools. The outputs from these program files should raise further questions and discussion by local personnel and risk management committees.

NOTICE

Each year the AQIM National Team reviews, discusses, and decides about suggested improvements (additions, removals, changes) to the baseline data fields based on analysis and operational needs. A summary of the changes made during previous fiscal years to data fields for the maritime cargo pathway begin on **page 5-29** under Maritime Cargo Epi Data Translation. Use the summary to identify data field changes that may impact the results of an analysis report run for a particular year.

Data analysis files automatically run a series of Epi Info analysis commands. Use the following guidelines to load and run data analysis program files.

1. Determine which data analysis program file (*.PGM) you will load and run in Epi Info.

In Epi Info, ANALYSIS, there is a data analysis program file for each fiscal year of data gathered. Look at the table below to identify the file to load and run depending on which fiscal year's data you are analyzing.

If you want to analyze data for:	Then load and run the following Epi Info ANALYSIS data analysis program file (*.PGM):
FY 1998	CGMMRT98.PGM
FY 1999	CGMMRT99.PGM
FY 2000	CGMMRT2K.PGM
FY 2001	CGMMRT01.PGM
FY2002	CGMMRT02.PGM

2. Get ready to run a data analysis program file.

A. Press [**CAPS LOCK]** (to ensure typing capital letters).

B. Be sure to start at C:\ prompt. Epi Info is a DOS program.

C. Change to the Epi Info directory. Type: **CD EPI6**, then Press [**ENTER**].

D. Start Epi Info program. Type: **EPI6**, then Press [**ENTER**].

E. Wait several seconds, the Main Menu will appear with the word Program highlighted.

F. Press [**P**] (to list Program menu).

G. Press [**A]** (to choose ANALYSIS from Program menu).

H.

If you are running:	Then:
A data program analysis file using Epi Info, ANALYSIS	CONTINUE to **Step 3.**
Further analysis commands using Epi Info	GO to the **Epi Info User Guide for Data Analysis–Maritime Cargo** beginning on **page 5-25**

3. Run the selected data analysis program file (*.PGM) from **Step 1.**.

You should be at the Epi Info ANALYSIS screen. If not, review **Step 2.**

NOTICE

To leave the analysis mode at any time, Press [F10]

A. At the EPI6 command prompt, Type: **RUN FILENAME**, where FILENAME is the *.PGM file you selected in Step 1. For example, if you are analyzing data gathered in Fiscal Year 2000, then you would enter at the command prompt: **RUN CGMMRT2K.PGM**

Then Press [**ENTER**]

If you:	Then:
See the following prompt at the bottom of the screen: "Press enter key to pick the records file you want to analyze"	1. Press [ENTER]. A window appears with a listing of *.REC files. 2. GO to **Step B.**
Do not see the prompt stated in the cell above	DO the following 3 steps

i. Type: **RUN**, then Press [**ENTER**]. A window appears with a list of *.PGM files.

ii. Using the Up (↑) and Down (↓) arrow keys, search and highlight the program file name you want to run (for example, CGMMRT2K.PGM), then, Press [**ENTER**].

NOTICE

If you cannot locate the file name you are looking for, then contact your local AQIM coordinator. If they are not available, then contact the National AQIM Coordinator.

iii. When the following prompt appears at the bottom of the screen: "Press enter key to pick the records file you want to analyze,"

Press [**ENTER**]. A window appears with a listing of *.REC files.

Go to **Step B.**

B. Using the Up (↑) and Down (↓) arrow keys, highlight the records file for the desired fiscal year.

Important

The program file (*.PGM) must match the records file (*.REC). When you are sure,

Press [**ENTER**].

C. You are prompted for a file name where the program will save the output. (An example is given on the screen using a three-letter port code and the date.)

Type **FILENAME**, where FILENAME is the file name you have created to save the program output. Then, Press [**ENTER**].

D. You are prompted to enter the date that is **one day before** the date you want the program analysis to start. (The analysis program analyzes records between two given dates, but does not include the given dates. Therefore, you must enter the dates of the days just before and after the dates you want included in the analysis.)

For example, to analyze Fiscal Year 2000 data, you would enter 09/30/1999 (one day before the beginning of Fiscal Year 2000).

Type the start date following the format (MM/DD/YYYY), where it is one day before the date you want the program analysis to start, then Press [**ENTER**].

E. You are prompted to enter the date that is **one day after** the date you want the program analysis to end.

Type the end date following the format (**MM/DD/YYYY**), where it is one day after the date you want the program analysis to end, then Press [**ENTER**].

4. The program will begin analyzing. You will see the program's output scroll quickly on the screen. It is being saved tot he file name you specified in **Step C.**.

5. The program is finished when the cursor returns to the EPI6> prompt. At this time, you may want to do any of the following:

If you want to:	Then:
View or print the program output file	1.Press [**F10**] to exit Epi Info. 2.Use a word processing program, such as WordPro to view and/or print the file. **NOTE**: The file usually is in the C:\EPI6 directory saved in an ASCII (DOS) text file format.
Run a data analysis program file or another fiscal year's data	Return to **Step 1.** at the beginning of this subsection to decide which program file to run.
Continue with further analysis commands using the Epi Info User Guide for Data Analysis	Go to the **Epi Info User Guide for Data Analysis– Maritime Cargo** beginning on **page 5-25**
Exit Epi Info, ANALYSIS	Press [**F10**]
Exit Epi Info	Press [**F10**] twice

Epi Info User Guide for Data Analysis– Maritime Cargo

When first doing analysis commands in Epi Info, thoroughly read the user guide to become familiar with basic analysis procedures to use with the monitoring data at your work site.

Get Ready

1. You should be at the Epi Info, ANALYSIS screen. If not, refer to **Step 2.**, getting ready to run a data analysis program file, under How to Load and Run Data Analysis Program Files on **page 5-22**.
2. Press [**F2**] (to list Commands menu).
3. Use the arrow keys to move the cursor to the READ command.
4. Press [**ENTER**] **twice** (to get a list of .REC files which can be analyzed).
5. Use the arrow keys to move the cursor to highlight **02CGMMRT.REC**.
6. Press [**ENTER**] (to bring the *.REC file you have chosen into the Analysis screen).
7. Press [**F4]** (to browse the data records in the file).
8. Use the arrow keys to look over the data to make sure it has been entered properly during the past month. (In subsequent months, you will want to browse through the entire file to see that all months of data have been properly entered, repeated fields such as workunit are consistently the same.)

   To view only one individual record press [**F4]** again to see the entire record as it was originally entered. If it is necessary to make changes to the record, **note the Epi Info record number in the lower right corner of the screen.**

   If you want to edit, correct, or change this record, go to "**Edit Records:**" on **page 5-28**

Analyze Records

9. Press [**F10**] (to return to the main Analysis screen).
10. Press [**F2**] (to see a list of analysis commands).
11. Use the arrow keys to move the cursor to FREQ (frequency) and Press [**ENTER**].
12. Press [**F3**] (to see a list of data variables). To better understand the variables list, refer to **page 5-29** for a list of data variable translations for the current FY and a summary of previous FYs.
13. Use arrow keys to highlight the data variable you wish to know the frequency of.

    Press [**ENTER**] **twice** and you will get a frequency table

EXAMPLE: If you want to know which carriers had shipments sampled, move the cursor to CARRIER and Press [**ENTER] twice.** You will get a table showing the number of records entered into the database for each carrier sampled in the survey.

14. Explore the database by doing FREQ commands for as many data variables as is logical. By doing this you will begin to understand the survey data and see some patterns in the data.

For each variable, use the F2 and F3 keys to choose the FREQ command and variable of interest, or type the word FREQ and the data variable names directly at the Analysis prompt.

15. To explore graphic commands: (The PIE command is one of several graphics commands which allow you to analyze the variables with graphs. This may make it easier to see patterns in the data and to understand the survey results.)

Press [**F2**] again and choose the PIE command with the cursor. Press [**ENTER**].

Press [**F3**] and select a data variable of interest from your data exploration in the FREQ analysis (**Step 10.**-**10.**).

Press [**ENTER**] **twice** and you will see a pie chart on your screen which might help you understand a pattern in the data.

EXAMPLE: For example, if you have chosen the CARRIER variable for a pie graph, then you may see that a larger percentage of samples were taken from one carrier, which may cause you to question the sampling procedures.

To leave the graph screen and return to the main screen, Press **<ESC>.**

16. Further FREQ exploring.

To see the numbers and kins of items carrying pests from random shipment inspections, Press [**F2**] to list commands.

Highlight FREQ and Press [**ENTER**]**.** (You will next "tag" more than one data variable to move these variables to the analysis command line.)

Press [**F3**] to list data variables, highlight CARGOITEM, and "tag" this variable by pressing: **SHIFT** and (+). A small arrow will appear next to CARGOITEM.

Next, highlight the variable CARGOITE01 and "tag" it. Do the same for CARGOITE02.

The analysis command line should appear: EPI6> FREQ CARGOITEM CARGOITE01 CARGOITE02.

Press [**ENTER**]**.** The output screen should display counts of items for each of the cargo item data lines for all records. Adding up the counts of the items will provide a category breakdown of the agriculture items carrying actionable pests during random sample inspections.

17. Further exploration. Two other commands (**F2 TABLES**, **F2 SELECT**) are very useful to explore the survey data and to begin answering questions you may have after using the FREQ and PIE commands.

18. To continue working with the subset of records established in Step 17.

Press [**F2**]. Move cursor to **FREQ**. Press [**ENTER**].

Press [**F3**]. Choose **ORIGIN**. Press [**ENTER**] **twice.** You will get a table that lists the frequency of sampled records from each country of origin.

Do a PIE ORIGIN analysis command to get a graphic picture of which countries the random shipments are coming from.

19. Press: Up (↑) arrow to move the command line cursor to the FREQ ORIGIN command.

Type: \C. Press [**ENTER**]. The new table will give a statistical analysis with 95 percent confidence intervals.

20. Type on the command line [**TABLES ORIGIN ACTIONPEST**]. (Or use the **F2** and **F3** keys to select the TABLES command and the two variables.)

Press [**ENTER**]. You will get a table which shows the frequency that actionable pests are being found in the samples from various origins.

This analysis can be used to further understand the cargo risk.

Edit Records:

E1. Press [**F10**] **twice** (to get back to the main EPI6 program menu).

E2. Press [**P**] (to list Program menu).

E3. Press [**N**] (to get to the Edit menu).

E4. Press [**F9**] (to list .REC files).

E5. Use arrow keys to highlight appropriate .REC file.

Press [**ENTER**] **four times** to get to the data entry screen for this file.

E6. Press [**CONTROL**] **and F** at the same time (to find the record which needs editing).

E7. Press [**F2**] and then **type the number** of the record you need to edit.

E8. Press [**ENTER**] (to get to the record you need to edit).

E9. Make corrections to the record, using the Up (↑) and Down (↓) arrow keys to move from field to field.

When finished editing, Press [**F10**], and answer **YES** to the question (at the bottom of the screen) that asks to write the edited record to the data file.

Return to the beginning of the user guide on **page 5-25**.

Maritime Cargo Strata Epi Data Translation

Core Data Fields for the Current Fiscal Year

VARIABLE NAME	SCREEN NAME
CARGOTYPE	Cargo Type:
PORT	Port:
PIERTERM	PIERTERM:
MRTRECNUM	MRTRECNUM: (Permanent record number)
STRATA	Strata: (name of cargo port or pathway strata)
COMMODITY	A) COMMODITY:
OTHER	OTHER:
DATE	B) Date:
CONSIGNEE	C) Consignee:
CARRIER	D) Carrier:
ORIGIN	E) Cargo Origin:
ORGNCODE	OrgnCode:
REGCODE	RegCode:
DESTINATIO	F) Destination
WORLDREG	World Region:
MA	Manifest As MA:

VARIABLE NAME	SCREEN NAME
MA01	MA:
MA02	MA:
DESGROUP	G) Description Group:
CARGOCOUNT	H) Cargo Count:
CARGOWEIGH	Cargo Weight(KG):
AMTINSP	I) Amt. Insp: (Amount of cargo that was inspected)
INSPECMETH	J) Inspection Method
SWP	K) Solid Wood Packing (SWP):
SWPTYPE	1. SWP Type:
SWPINSP	2. Amount of SWP Inspected %:
BARKONSWP	3. Bark on SWP:
SWPFUMCERT	4. SWP Fumigation Certif. Or Other Treatment presented:
REQACTION	L) Require Action Beyond Inspection to Reduce Risk?
USECARGO	1. Intended Use of Cargo:
ACTIONPEST	2. Action Pest: (Actionable Pest Found)
First Pest Information:	
CARGOITEM	Cargo Item:
PESTID	PestID:
PESTNUM	Pest Intercep. Num:
WFA	Where Found:WFA:
WFA01	FA: (Second recording for more than one Where Found Location)
CONT	Cont: (Continue to next Second Pest Information)
Second Pest Information:	
CARGOITE01	Cargo Item:
PESTID01	PestID:
PESTNUM01	Pest Intercep. Num:
WFA02	Where Found:WFA:
WFA03	WFA: (Second recording for more than one Where Found Location)
CONT01	Cont: (Continue to next Third Pest Information)
Third Pest Information:	
CARGOITE02	Cargo Item:
PESTID02	PestID:
PESTNUM02	Pest Intercep. Num:
WFA04	Where Found:WFA:
WFA05	WFA: (Second recording for more than one Where Found Location)

VARIABLE NAME	SCREEN NAME
CONTMFOUND	3. Contaminant Found?:
MISMANSMUG	5. Agr. Item Mismanifested/Smuggled?:
First Contaminant/Mismanifested or Smuggled Information:	
CONTMITEM	Contaminant/Item:
CNT	Cnt: (Cargo Amount, count of boxes, cartons, units... etc.)
WGHT	Wght,KG:
PROHIBITED	Prohibited: (Prohibited by Regs or Quarantine #)
WFA06	Where Found:WFA:
WFA07	WFA: (Second recording for more than one Where Found Location)
CONT02	Cont: (Continue to next Item Information)
Second Contaminant/Mismanifested or Smuggled Information:	
CONTMITE01	Contaminant/Item:
CNT01	Cnt: (Cargo Amount, count of boxes, cartons, units...etc.)
WGHT01	Wght,KG:
PROHIBIT01	Prohibited: (Prohibited by Regs or Quarantine #)
WFA08	Where Found:WFA:
WFA09	WFA: (Second recording for more than one Where Found Location)
MO	MO: (month)

Summary of Data Field Changes Made During Previous Fiscal Years

For Fiscal Year:	The following additions, changes, and removals were made to the data fields:
2001	Additions: REGCODE=Reg Code WORLDREG=World Region DESCGROUP=Description Group
	Changes: The order of the data fields was reversed for cargo weight and count. CARGOCOUNT used to be CARGOWEIGH CARGOWEIGH used to be CARGOCOUNT CNT used to be WGHT WGHT used to be CNT CNT01 used to be WGHT01 WGHT01 used to be CNT01
	Removals: REFERREDTO=Referred To MA03=Manifested As
1999	Additions: MRTRECNUM=MRTRECNUM MA01=Manifested As MA02=Manifested As MA03=Manifested As INSPECMETH=Inspection Method SWP=Solid Wood Packing (SWP) SWPTYPE=SWP Type SWPINSP=Amount of SWP Inspected % BARKONSWP=Bark on SWP SWPFUMCERT=SWP Fumigation certif on Other Treatment presented MO=MO
	Changes: MA used to be MANIFESTAS
	Removals: TIME=Time IDENTNO=Ident Cntr No COUNTMFOUN=COUNTMFOUND

For Fiscal Year:	The following additions, changes, and removals were made to the data fields:
2002	**Additions:** Commodity: Other:
	Removals: Strata: Cargo category: MA MA01 MA02